WHAT IS CLAIMED IS:

1. A wavelength-division-multiplexing system comprising:

a semiconductor-amplification section for amplifying input signals according to a compensation signal in order to compensate the intensity deviation of each channel in the semiconductor-amplification section;

a multiplexer for multiplexing a plurality of signal outputs from the semiconductor-amplification section;

an optical-detection section for splitting a part of the multiplexed optical signals from the multiplexer, for demultiplexing the split optical signals into a plurality of channels, and for converting each of the demultiplexed channels into corresponding electric signals; and,

a control section generating the compensation signal according to a comparison result of each converted electric signal to a predetermined reference intensity.

2. A wavelength-division-multiplexing system according to claim 1, wherein the optical-detection section comprises:

a tap for splitting the intensity of the multiplexed optical signal outputs from the multiplexer;

a demultiplexor for demultiplexing a part of the optical signals split from the tap into a plurality of channels; and,

a plurality of photo diodes, arranged in a one-to-one correspondence with the demultiplexed channels, for converting each of the channels to electric signals.

3. A wavelength-division-multiplexing system according to claim 1, wherein the multiplexer is made of a multi-layer, thin-film type of WDM filter.

4. A wavelength-division-multiplexing system according to claim 1, wherein the multiplexer is made of a Fiber Grating.

5. A wavelength-division-multiplexing system according to claim 2, wherein the multiplexer, the tap, and the demultiplexer is integrated on a substrate made from silica material.

6. A wavelength-division-multiplexing system comprising:

a semiconductor-amplification section for amplifying input signal according to a compensation signal;

an optical-detection section for splitting each of the channel outputs from the semiconductor-amplification section and for converting a part of each split-channel output into corresponding electric signals;

a multiplexer for multiplexing each of the channel outputs from the optical-detection section into corresponding optical signals; and,

a control section for the compensation signal based on a comparison result of each intensity of the output signals from the optical-detection section to a predetermined reference intensity.

7. A wavelength-division-multiplexing system according to claim 6, wherein the optical-detection section comprises:

a plurality of taps for splitting each channel outputs from the semiconductor-amplification section, for outputting one part of each split-channel output to a corresponding photo diode, and for outputting the other part of each split-channel output to the multiplexer; and,

a plurality of photo diodes, arranged in a one-to-one correspondence with each channel output, for converting each of the channel outputs into corresponding electric signals.

8. A wavelength-division-multiplexing system according to claim 6, wherein the multiplexer is made of a multi-layer, thin-film type of WDM filter.

9. A wavelength-division-multiplexing system according to claim 6, wherein the multiplexer is made of a Fiber Grating.

10. A wavelength-division-multiplexing system according to claim 7, wherein the multiplexer, the tap, and the demultiplexer is integrated on a substrate made from silica material.